REMARKS

Claims 1-31 and 48-79 are the active claims pending in the application.

The examiner rejects claims 1-3, 5-8, 11-18, 21-24, 27-31, 48-51, 53-56, 59-66, 69-72, and 75-79 as being anticipated by Erbert et al. (2003/0189959). Applicants traverse the rejection inasmuch as the distinctions between Erbert and the invention as claimed are both fundamental and numerous.

First, the examiner states that the apparatus described by Erbert generates "optical pulses, wherein each pulse may have individualized characteristics..." This is an incorrect statement of Erbert's disclosure. There is no method disclosed in Erbert which provides for individualized control of the output optical pulses, which is one fundamental aspect of the invention.

While paragraphs 0015 and 0024 describe a laser system consisting of a fiber amplifier, stretcher and compressor, no method is described for generating composite pulses. The generation of composite pulses is described in detail in the present specification, and is specifically claimed.

Further in paragraphs 0015, 0028, and 0030, Erbert describes an ability to vary average power level. The only mention of feedback control for this purpose is made in paragraph 0028. This is the only feedback control described in Erbert, and it is not relevant to the feedback controls presently claimed.

While the operational wavelength is described in paragraph 0021 of Erbert, no method is described for *actively varying* the wavelength as presently disclosed and claimed.

Furthermore, there is no mention of frequency conversion as described and claimed in the present application. While parametric amplification is described in paragraph 0024 as the

examiner points out, this is not relevant to the frequency conversion and control means described in the present application. As stated in paragraph 0024, using the parametric oscillator allows wavelength tuning over a defined range. Wavelength tuning and frequency conversion are completely different concepts in the present context, as is well known in the art.

While a repetition rate of 4 kHz is mentioned in paragraphs 0025, 0028 and 0030, there is no description of any ability to *actively vary* this repetition rate, nor is there any mention of a control means which even monitors the repetition rate. In fact, this system is completely incapable of active variation of the repetition rate because the optical design of the system as described in paragraph 0029 relies upon stable thermal lenses within the 4-pass amplifier. As such, any active variation of repetition rate would affect the system gain and average power and therefore de-stabilize the 4-pass amplifier. The system was designed to operate at a single repetition rate as determined by the Pockels cell within the Yb:YAG regenerative pre-amplifier (paragraph 0025).

Although not specifically addressed by the examiner, a means of beam manipulation is described in paragraph 0019 of the reference. However, unlike the present invention, the beam control means within Erbert's laser system are solely intended to *maintain beam alignment.*

Furthermore, while a means is mentioned for delivering the beam to a target, no link between beam delivery and active laser control is explicitly disclosed.

Finally, target diagnostics are described in paragraph 0030; however there is no suggestion that these diagnostics are linked to the feedback control systems.

In sum, Erbert fails to describe any method for creating composite pulse bursts or allowing for active variation of the laser wavelength, laser pulse duration, laser repetition rate, beam shape, polarization, or indeed anything other than average power. Accordingly, the invention uniquely describes a laser system and control means which allow much greater flexibility and control than described in Erbert. Furthermore, the present application also describes how these controls enable unique processing applications. The system described in Erbert neither anticipates nor is capable of even permitting the level of control presently described and claimed.

The examiner has entered a series of rejections under 35 U.S.C. § 103 against various subsidiary claims; however, inasmuch as these rejections all rely primarily upon the Erbert reference, and do not cure any of Erbert's insufficiencies, these rejections suffer the same defects as catalogued above. For sake of completeness, Applicant's will briefly address these rejections below:

The examiner rejects claims 19-20, 52, and 67-68 as being unpatentable over Erbert et al. (2003/0189959) in view of Dauntus (2006/00564468). Specifically, the examiner claims that Erbert describes a method with active feedback control to maintain the correct repetition rate. However, this is based upon a misunderstanding of paragraph 0028. Paragraph 0028 of Erbert only describes controlling the output power. There is absolutely no mention of active control of the laser repetition rate. The examiner is correct in suggesting that paragraph 0131 in Dauntus discloses an optical gating device for characterization of the compressed pulse duration; however this has no relevance to variation of the laser repetition rate.

The examiner rejects claims 9, 25, 57, and 73 as being unpatentable over Erbert et al. (2003/0189959) in view of DeSimone (5933274). While the examiner is correct that a method for accurate alignment to a cross hair and adjustment of the ablation plane would be obvious to those skilled in the art based upon these references; the invention describes methods which allow for independent control of beam size and divergence along x and y axes. Specifically, the figures 11a and 11b illustrate a novel method for controlling the beam size and shape in a way not suggested by any combination of the references.

The examiner rejects claims 10, 25, 58, and 74 as being unpatentable over Erbert et al. (2003/0189959) in view of DeSimone (5933274) and further in view of Palese (2002/0131164). The examiner suggests that the imaging spectrometer/CCD camera and feedback control means as shown in figures 1, 3, and 4 of Palese could be used to generate feedback for actively controlling beam distribution. However, as Palese describes an invention for phase-locking an array of fiber lasers, this method is not seen as relevant to the invention as claimed.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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